CLAIMS

1. An encoding apparatus for generating a transport stream by encoding an image signal, characterized by:

an image encoding unit for encoding said image signal by in-frame encoding and by inter-frame prediction encoding and for generating an image encoding data sorted in groups to GOP comprising a plurality of pictures;

a time information generating unit for generating time information multiplexed in said transport stream;

an identification information generating unit for generating identification information to indicate that continuity of time information is interrupted when the continuity of said time information multiplexed in said transport stream has been interrupted; and

a multiplexing unit for multiplexing said image encoding data with said time information and said identification information and for outputting it as a transport stream.

2. The encoding apparatus according to claim 1, characterized in that said multiplexing unit multiplexes said identification information on a part of bits of a

private data, said private data being an adaptation field in a transport packet to make up said transport stream and constituting an optional field within said adaptation field.

3. The encoding apparatus according to claim 1, characterized in that said multiplexing unit outputs a packet including said identification information within a predetermined time period from the time when a packet including the leading byte of GOP has been outputted.

4. The encoding apparatus according to claim 3, characterized in that said predetermined time period is 3 milliseconds.

5. An encoding method for generating a transport stream by encoding an image signal, characterized by:

encoding said image signal by in-frame encoding and by inter-frame prediction encoding, and generating an image encoding data sorted in groups to GOP comprising a plurality of pictures;

generating time information multiplexed in said transport stream;

generating identification information to indicate that continuity of time information is interrupted when

continuity of said time information multiplexed in said transport stream has been interrupted; and

multiplexing said image encoding data with said time information and said identification information, and outputting it as the transport stream.

6. The encoding method according to claim 5, characterized in that said method further comprising the step of multiplexing said identification information on a part of bits of a private data, said private data being an adaptation field in a transport packet to make up said transport stream and constituting an optional field in said adaptation field.

7. The encoding method according to claim 5, characterized in that said method further comprising the step of outputting a packet including said identification information within a predetermined time period from the time when the packet including the leading byte of GOP has been outputted.

8. The encoding method according to claim 7, characterized in that said predetermined time period is 3 milliseconds.

9. A recording apparatus for recording an image signal to a recording medium, characterized by:

an image encoding unit for encoding said image signal by in-frame encoding and by inter-frame prediction encoding, and for generating an image encoding data sorted in groups to GOP comprising a plurality of pictures;

a time information generating unit for generating time information to be recorded in said recording medium;

an identification information generating unit for generating identification information to indicate that continuity of time information is interrupted when the continuity of the time information to be recorded in said recording medium has been interrupted;

a multiplexing unit for multiplexing said image encoding data with said time information and said identification information and for outputting it as a transport stream; and

a recording unit for sequentially recording said transport stream as tracks on said recording medium.

10. The recording apparatus according to claim 9, characterized in that said multiplexing unit multiplexes said identification information on a part of bits of a

private data, said private data being an adaptation field in a transport packet to make up said transport stream and constituting an optional field within said adaptation field.

11. The recording apparatus according to claim 9, characterized in that said multiplexing unit outputs a packet including said identification information within a predetermined time period from the time when a packet including the leading byte of GOP has been outputted.

12. The recording apparatus according to claim 11, characterized in that said predetermined time period is 3 milliseconds.

13. A recording method for recording an image signal to a recording medium, characterized by:

encoding said image signal by in-frame encoding and by inter-frame prediction encoding, and generating an image encoding data sorted in groups to GOP comprising a plurality of pictures;

generating time information to be recorded in said recording medium;

generating identification information to indicate that continuity of time information is interrupted when

continuity of the time information to be recorded in said recording medium has been interrupted;

multiplexing said image encoding data with said time information and said identification information and outputting as a transport stream; and

sequentially recording said transport stream as tracks on said recording medium.

14. The recording method according to claim 13, characterized in that said method comprising the step of multiplexing said identification information on a part of bits of a private data, said private data being an adaptation field in a transport packet to make up said transport stream and constituting an optional field in said adaptation field.

15. The recording method according to claim 13, characterized in that said method comprising the step of outputting a packet including said identification information within a predetermined time period from the time when the packet including the leading byte of GOP has been outputted.

16. The recording method according to claim 15, characterized in that said predetermined time period is

3 milliseconds.

17. A decoding apparatus for decoding a transport stream multiplexed with an image encoding data, time information and identification information, said image encoding data prepared by encoding an image signal by in-frame encoding and by inter-frame prediction encoding, and said identification information indicating that continuity of time information is interrupted, said identification information being generated when continuity of said time information has been interrupted; characterized by:

an image decoding unit for decoding said image decoding data and for outputting said image data;

a storage unit for temporarily storing said image data;

a time information reading unit for reading said time information;

an identification information reading unit for reading said identification information;

a display timing signal generating unit for generating a display timing signal of said image data by using said time information read by said time information reading unit when said identification information reading unit does not read said

identification information, and for neglecting said time information read by said time information reading unit and for generating a display timing signal of said image data by using a predetermined timing signal; and

a reading control unit for controlling the reading of said image data stored in said storage unit according to a display timing signal generated by said display timing signal generating unit.

18. A decoding method for decoding a transport stream multiplexed with an image encoding data, time information and identification information, said image encoding data prepared by encoding an image signal by in-frame encoding and by inter-frame prediction encoding, and said identification information indicating that continuity of time information is interrupted, said identification information being generated when continuity of said time information has been interrupted; characterized by:

decoding said image encoding data and outputting an image data;

temporarily storing said image data;

reading said time information;

reading said identification information;

generating a display timing of said image data by

using said time information as read when said identification information has not been read, and neglected said time information as read and generating a display timing signal of said image data by using a predetermined timing signal when said identification information has been read; and

controlling the reading of said image data as stored according to the generated display timing signal.